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ABSTRACT

The strategies college students use to retain material that is low in meaningfulness were studied. Participants were 149 undergraduate teacher-training students in human development and learning classes. Students randomly received and were asked to memorize one of three 15-item lists: nonsense syllables, unrelated words, or related words. A brief questionnaire evaluated the students' attributional assignment for success and failure and their fluency, flexibility, and originality. Three sets of multiple regressions run on nonsense and unrelated word lists tested the idea that students' attributional preferences would vary with measures of divergent thinking and that both would predict word retention. For nonsense syllables, success and failure attributions significantly predicted fluency and flexibility but not originality. For unrelated words, fluency and originality scores were significantly predicted by attributions. Flexibility was positively correlated with, and significantly predicted, word retention. Success at retaining nonsense words was related more to chance and ease of task attributions, while ability, knowledge, and effort attributions were chosen for unrelated words. Results suggest that encouraging students to bring personal meaning to low-meaning tasks can increase retention. (Author/SLD)

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Use of Meaningfulness as a Function of Attributions and Divergent Thinking

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Abstract

What strategies do college students use to retain material that is low in meaningfulness? What determines if students will spontaneously employ personal control in meaningfulness? Is it related to attributional assignment and/or divergent thinking? Participants consisted of undergraduate teacher-training students enrolled in human development and learning (N = 149). Students randomly received one of three fifteen item lists: nonsense syllables, unrelated words or related words. A questionnaire was given related to attributional assignment for success and failure plus four divergent thinking tasks. Three sets of multiple regressions were run to test the idea that attributional preferences would covary with measures of divergent thinking and that both would predict word retention. For nonsense syllables success and failure attributions significantly predicted fluency and flexibility but not originality. For unrelated words fluency and originality scores were significantly predicted by attributions. Flexibility was positively correlated with and significantly predicted word retention. Success at retaining nonsense syllables was more related to chance and ease of task attributions in contrast to unrelated words where ability, knowledge and effort attributions were chosen. Methodological limitations are addressed. Implications are that we can encourage students to take charge and bring personal meaning to low meaning tasks to increase retention.

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Use of Person Meaningfulness as a Function of Attributions and Divergent Thinking

Objectives: What strategies do college students use to retain material that is low in meaningfulness? What determines if students will spontaneously employ personal control in meaningfulness? Is it related to attributional assignment and/or divergent thinking?

Perspective/Theoretical Framework: The more meaningful a task, the easier it is to remember (Underwood, 1972). In the case of remembering material that is lacking in meaningfulness, such as nonsense syllables, or in terms of relating words that are not typically related, a strategy is usually employed (such as mnemonics) for more efficient encoding. Such a strategy becomes essential when the amount of material to be retained exceeds the seven plus or minus chunks of memory span recalled by the typical person (Miller, 1956). Covert, mediating S-R processes take place in the brain and intervene between a received stimulus and an overt response (Goss, 1961; Kjeldergaard, 1968). Kendler (1962) indicated that central processes, most importantly language, mediate between environmental stimuli and overt response. It is anticipated that the majority of college students will follow the expectancies of the meaningfulness literature, i.e., not employ a strategy and accept the lack of meaningfulness of the task. However, a minority of students will violate these expectancies, i.e., not accept the task meaningfulness (or lack of), and instead employ their own personal meaningfulness strategy. Such students are taking charge and perceiving control. It is expected that these students will be internal in terms of locus of causality per attributional theory (Weiner, 1979). One would expect these students to attribute successful test performance to internal, controllable and changeable dimensions. Belief in one's control or mastery in a stressful situation may lead to successful adjustment only so long as the situation is actually controllable or the illusory belief can be maintained (Shower & Cantor, 1985). Attributional preference may tell us who is likely to try mediation, but divergent thinking skills may tell us who is most likely to be successful. Divergent thinking was measured by tasks that require the use of fluency, flexibility and originality. It is hypothesized that divergent thinkers will recall more items from a non-related word list because they spontaneously verbally mediate. It is also hypothesized that the subjects who retain more will be higher in internality and/or in a sense of controllability over the outcome of one's academic performance.

Data Source and Method: The participants consisted of undergraduate teacher-training students enrolled in Human Development and Learning (N=149). Students were randomly assigned one of three lists. All three lists contained 15 items of three letters each. List 1 were nonsense syllables, List 2 were unrelated words and List 3 were related words. One minute

was allowed to memorize the list with a 15 second delay before subjects reproduced the list in any order. A brief questionnaire was administered, which consisted of two questions: 1) Think about the most recent class test you took in which you were successful, according to your standards. Of all the possible reasons, which of the following represents the major reasons you were successful? You may indicate up to three, with 1 being the first reason, 2 the second, etc. (If none of these pertain, then write the reason in the space below.) Listed were 11 attributions, e.g., skill, effort, ability, etc., and 2) Identical to 2 except "failed" was substituted for "successful." A two page, four item open-ended questionnaire (time limit = 3 minutes/item) tapped into fluency, flexibility, and originality. These were evaluated and scored by a doctoral student in gifted education.

Results: Three sets of multiple regressions were run on both word List 1 (nonsense syllables) and word List 2 (non-related words). It was hypothesized that different strategies would be required for successful retention of each list. The nonsense list had a mean of 7.1 (N = 77), a standard deviation of 1.9 and a median of 7. The non-related word list had a mean of 9.6 (N = 78), a standard deviation of 2.2 and a median of 9.

In order to test the idea that attributional preferences would predict measures of divergent thinking and that both would predict word retention, three sets of regressions were conceptualized. First, all three divergent thinking measures were regressed on attributions (For the regressions, those variables were dichotomized indicating that attributions were either chosen or not chosen). Since this was run separately for attributions for success and failure, there were six regressions in this first set. Next, for set 2, word retention (a median split was performed on the number of retained words to represent high and low retention) was regressed on divergent thinking. Finally, for set 3, word retention was regressed on success and failure attributions

Word List 1 - Nonsense Words: For regression set 1, success and failure attributions significantly predicted fluency and flexibility, but not originality. The success attributions predicting fluency were chance and ease of task respectively ($R = .35$, $P < .05$). Surprisingly, those who tend to choose chance were likely to receive a high score on fluency, and as predicted those who chose ease of task were likely to receive lower scores on fluency. The failure attributions predicting fluency were insufficient effort and chance ($R = .43$, $P. < .05$). Those choosing effort scored low and those choosing chance scored high on fluency. Flexibility was predicted by only one success and one failure attribution. For success, ease of task was significant ($R = .26$, $P. < .05$) indicating that those who chose this attribution scored high on flexibility. For failure,

insufficient effort was significant ($R = .26$, $p < .05$). Those choosing effort scored lower on flexibility. Neither of the other two sets of regressions were significant. In other words, nonsense word retention was not predicted by attributions chosen or by divergent thinking.

Word List 2 - Non-related Words: In this first set of regressions fluency and originality scores were significantly predicted by attributions. The success attributions predicting fluency were ability and knowledge ($R = .36$, $P. < .05$). As one would expect, choosing these reasons for success is related to high fluency scores. Insufficient ability for failure significantly predicted fluency ($R = .28$, $P. < .05$). Those who chose this as an explanation also scored high on fluency. Originality was significantly predicted by bias in my favor and effort for success ($R = .35$, $P < .05$), and by bias not in my favor for failure ($R = .23$, $P. < .05$). Individuals endorsing all three tended to score high on originality. In regression set 2, flexibility was positively correlated with and significantly predicted word retention ($R = .25$, $P. < .05$). Regarding the final set of regressions, only insufficient competence as an attribution for failure significantly predicted word retention ($R = .29$, $P. < .05$). Those choosing this option retained more words.

Regression for set one represented the correlation between attributional style and divergent thinking. High scores on Originality and Fluency made mostly internal/external attributions for failure. Regression set two represented the relationship between divergent thinking and word retention. Divergent thinkers tended to retain more words. Finally, set three represents the responsibility aspect of our hypothesis, in terms of internal attributional styles accounting for word retention. Only one internal attribution was significant.

Educational Importance: Even though these results are in the predicted direction, they are in conclusive. Flexibility predicted word retention, but was not significantly related to any attributions. A number of modifications in methodology of this pilot study are as follows: (a) both actual and perceived success/failure should be assessed; (b) attributions to the specific task involved should be taken both before and after the results are known, using a Likert type scale; (c) ability should be partialed out; (d) only one divergent thinking measure should be used. If we can encourage students to take charge of a nonsensical or a boring task and accept responsibility for changing the task into something more meaningful, learning performance should increase. By emphasizing both one's effort and specific strategies, such as divergent thinking tactics, students may develop the skills to accompany the perceived control. By identifying some salient variables related to the strategy one uses to retain material, one may be able eventually

to train students to be more efficient and more responsible.

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